



TRIP ASSIGNMENT MODEL WITH CONSIDERATION OF VEHICLE EMISSION STUDY CASE FOR CIMAH CITY

ABSTRACT

Nowadays, many cities in Indonesia are facing problems related to traffic and transportation such as Cimahi city which located on the west part of west java, Bandung. Traffic growth in Cimahi city is caused by industrialisation and industrialisation wich represent the main factor of increasing population and travel demand in Cimahi city. Rapidly, Cimahi's government immediately starts to avoid congestion by improving infrastructure facilities or other traffic management.

Traffic assignment in four step modelling is carried out as a basic to simulate traffic management system. The congestion existed in cimahi city especially in peak periods caused by the increasing the number of private cars. Based on the reasons, the study only considers private car as mode of transportation that will be assigned in peak hour periods. To obtain the peak period result, the result of traffic assignment should be multiplied by 10.5% for collector road and 9% for arterial road. The technique assignment is used user equilibrium and traffic assignment is run by using generalized cost. Generalized cost is calculated by actual cost and perceive cost (emission cost). CUBE software has been employed for this research to analyze traffic performance. CUBE software applies existing condition (base) and four scenarios. The analysis will compare between the assignment with emission cost and the assignment without emission cost.

Transportation improvements cause changes in the existing traffic network.. The improvement are road widening (scenario 1), high side friction reduction on arterial road (scenario 2), Building ringroad (scenario 3) and road widening and ringroad combination (scenario 4). These changes analyzed is reduction of v/c ratio as well as length of congested links. The first analysis is v/c ratio reduction all of scenario which compared with base condition. The v/c ratio reduction by assignment with emission cost are scenario 1(33%), scenario (42%), scenario (37%) and scenario 4(64%). The v/c ratio reduction by assignment without cost are scenario 1 (30%), scenario 2 (34%), scenario 3 (14%) and scenario 4 (50%). In additional, the length of congested link reduction by assignment with emission cost are scenario 1(56%), scenario 2(64%), scenario 3 (65%), and Scenario 4 (96%). Then, the length of congested link reduction by assignment without emission cost are scenario 1(71%), scenario 2(68%), scenario 3 (15%), and Scenario 4 (78%)

Key words: traffic assignment, private car, peak hour, emission.